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General Science in the Eighth Grade or Not?

By E. J. ASHBAUGH

EARLY in October the Powers General Science Test and the Ruch-Popenoe General Science Test were each administered to two groups of children, one group in each case being ninth-grade pupils in Columbus junior high schools, who had had a year's course in general science during the preceding year. The other group for each test was made up of children in schools outside of Columbus in which general science was not taught in the eighth grade. The schools cooperating in the study were the Indianola, the McKinley, and the Highland Avenue junior high schools of Columbus; and those of Bremen, Circleville, Fremont, Lancaster, Marion, Piqua, St. Paris, and Westerville. The Ruch-Popenoe test was given to the pupils of the McKinley and Highland Avenue junior high schools at Columbus and to certain pupils at Circleville, Fremont, Piqua, St. Paris, Marion, and Westerville, while the Powers test was given in the Indianola and McKinley junior high schools at Columbus and to students at Bremen, Lancaster, Marion, Piqua, and Westerville.

The total number of pupils taking the tests were:

Powers test	
Columbus	191
Outside Columbus	147
Ruch-Popenoe test	
Columbus	169
Outside Columbus	166

The students were then paired by their scores on an intelligence test, and those for whom no partner could be obtained with an intelligence quotient within one-point variation were discarded. There were 124 pairs on the Powers test and 133 pairs on the Ruch-Popenoe.

The median score on the Powers test made by the Columbus students who were paired with others living outside of the city was 39.1; the median score of the Columbus pupils discarded was 38.0. The range of variability in scores of the two groups, those used and those not used, was almost identical, and the difference between the medians was but 1.1 points. Consequently, no disadvantage was given to the Columbus schools by discarding one-third of the whole group. The median score on the same test of the pupils from outside of Columbus, who were paired with the Columbus children, was 33.1, and for those discarded, 36.0. The range of variability was the same, but the difference in central tendency favoring those discarded was 2.9. On the Ruch-Popenoe test the median score of the Columbus pupils who were used in the pairing was 23.7, and for those discarded, 23.0. The range of variability was almost identical, and the central tendencies had less than one-point difference. For the children outside of Columbus, the median score of those used was 24.4, and for those not used, 27.8. The range of variability was the same with the central tendency of those not used 3.4 higher. The non-Columbus students discarded made slightly higher median scores than the pupils used.

Comparing the scores of Columbus and non-Columbus paired students on the Powers test, the Columbus pupils had a median score 6 points higher than the non-Columbus pupils. The non-Columbus pupils had a median score on the Ruch-Popenoe test .7 of a point higher than the Columbus pupils. The difference in the medians on the Ruch-Popenoe test is not statistically significant. With the Powers test the difference between the medians is greater, but is still statistically non-significant. With both tests it would seem, therefore, that as far as central tendencies and variability are concerned, when the pupils were paired on the basis of intelligence, their scores on this general-science test showed no difference. In other words, those who had had a year of general science made scores neither better nor worse than those who had had no general science during their eighth grade.

An analysis was made of the scores on the individual test items to see whether or not the same conclusion would hold true as held for the tests. The Ruch-Popenoe test consists of two parts; the first includes 50 multiple-choice items, and

the second contains 20 figures or diagrams with a total of 65 items of the completion-test type. On the first part of this test, the difference between the percentage of correct answers by the Columbus and non-Columbus pupils was in favor of the Columbus pupils on 27 items, and non-Columbus on 21 items, with identical percentages on 2 items. However, when these differences were treated statistically, there were but 8 items upon which the differences were statistically significant. On 6 of these items the difference was in favor of the non-Columbus. These six questions were as follows:

1. The capacity to do work is termed....
   energy, inertia, momentum, efficiency, mechanical, advantage, mass, velocity
2. When a liquid contains all the dissolved substance possible, the condition is termed....
   osmosis, permeability, fusion, neutralization, reduction, transpiration, saturation
3. Decaying vegetable matter in the soil is termed....
   fungus, nitrates, mineral phosphates, lichens, potash, humus
4. The smallest of the planets is Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune.
5. Electrolysis of water liberates hydrogen and chlorine, nitrogen, carbon dioxide, ammonia, acetylene, oxygen, bromine.
6. The process of food manufacture in green plants is called....
   respiration, transpiration, digestion, mitosis, pollination, photosynthesis, pasteurization.

If you have been able to hold these in mind you will have noted that two of them are from the field of chemistry, and one each from physics, botany, astronomy, and agriculture. There are, however, among the 50 questions involved: 15 in physics, 10 in physical geography, 10 in biology, 9 in chemistry, 5 in agriculture, and 3 in hygiene. A few of these questions might have been classified in either of two general-science fields. Hence, on most questions in these fields, there was no significant difference in the percentage of right answers of those who had a year of general science and those who had not.

The two questions upon which the pupils who had not had general science made higher scores than those who had were:

1. Poisonous products secreted by bacteria are called....
   enzymes, anti-bodies, toxins, vaccines, ferments, legumes
2. An example of a leguminous plant is the willow, clover, toadstool, pansy, lilac, moss, maple.

One of these questions is from the field of bacteriology, and the other, from that of agriculture. It is evident, therefore, that not even in special fields of science is it safe to assume that those who have had the course in general science will make a higher score than those who have not had the course.

In the second part of the test, the completion type, the

Columbus students excelled on 26 of the test items, those living outside of Columbus on 31, and their scores were equal on 8. The differences, however, were statistically significant only in the case of 8 of these 57 items on which they differed. In two cases the significant differences were in favor of the Columbus children, and in six, in favor of the non-Columbus. The two items in which the Columbus children excelled were as follows:

Figure 15 is the identification of the drawing of a pump, and the question is stated: "This is a drawing of a ....." It is of interest to know in this connection that the other question, namely, "The piston is lettered....," was answered correctly by an equal number of each group. The two other questions, "The valve which opens on the upstroke is lettered....." and "The greatest distance that valve *C* can be placed above the level of the water at *D*, if the instrument is to work successfully is about.....feet," were answered correctly by a larger number of non-Columbus children than by Columbus. The difference is not statistically significant. The other item upon which the Columbus students excelled was in the identification of Mercury, in a diagram of the planetary system. A slight difference also in favor of the Columbus children was noted in identifying the other four planets, Mars, Jupiter, Saturn, and Uranus, but the differences were not statistically significant.

The items upon which the non-Columbus children excelled were five items involved in identification of parts of the digestive tract, and one item in interpreting a barometric map. The explanation is perhaps due to the fact that during the eighth grade, while the Columbus children were having general science, the non-Columbus children were studying geography and physiology. This perhaps would account for their excelling on the figure involving the digestive tract, but will scarcely explain why they were able to do equally well on figures involving mechanics, heat, and the like.

When the whole situation is analyzed from the standpoint of this particular test, the conclusion seems to be that a year's work in general science is no better than a year in physiology or geography in preparing students to pass this particular test.

When attention is turned to the results of the other groups which were tested with Powers General Science Test the results show up more favorably to the Columbus students. This test consists of 100 items of the multiple-choice variety upon

which the Columbus students, who had had a year of general science made scores which were statistically significantly higher on 21 items, while those who had not had general science made significantly higher scores on 2. Both of the items upon which the non-Columbus students excelled were items in the field of physiology and hygiene. Those upon which the Columbus students excelled were mostly in the fields of electricity and botany, with one question in agriculture, and three in mechanics. This leaves, however, 77 questions out of 100 upon which the differences in accuracy of those who had a course in general science and those who had not had, were statistically non-significant. When we combine the results of the two tests with their total of 215 items, we find a significant difference in the accuracy with which individual items were answered in favor of the children who have had general science on 29 items, in favor of those who had not had general science on 10 items, and no significant difference on 176 items.

In view of these findings a number of questions may be legitimately raised. First, Does the test measure knowledge of significant science material which children ought to learn? Second, Should we expect children to learn this material more effectively in a course in general science than in courses in geography, physiology, and hygiene? Third, Was the information upon which one group excelled the other learned in their school work or outside in their contact with life? Fourth, Are there desirable attitudes, habits, and the like secured in a course in general science which are not secured in other courses? If so, what are they, and what is the evidence that they have been attained in general-science work? Fifth, What is the value of attitudes if they do not bear fruit in additional knowledge? Sixth, Is it safe to assume that these habits and attitudes are secured in the general-science courses without objective measurement to prove their existence?

This experiment offers no answer to either of the above questions. It does challenge, however, the work of general-science teachers whether in eighth grade or ninth regarding the results of their science work. A year of teaching in a specific field which does not yield significantly greater results on more than 14 per cent of the items on a test as extensive as the sum total of these two should be called upon to justify its existence in terms of specific objective evidence.

Junior Wage Earners

By C. W. HALL

SINCE about two-thirds of all the boys and girls who enter junior high school withdraw without graduation, some attention should be paid to this group when reorganizing the curriculum. A few studies have been published which deal with the adjustment of the members of this group within the present program, and techniques for the discovery of these pupils prior to their actual withdrawal have been developed. Several experimental efforts in providing special curricular opportunities have been reported. In Ohio the Bing Law requires all children to remain in school until they are sixteen years of age. Regular permits are granted to boys and girls sixteen or seventeen years of age who have completed at least the seventh grade of school and who can pass the physical examination. Retarded permits are granted children who are sixteen or seventeen years of age, but who are unable to complete the required seventh grade because of mental retardation. Part-time permits are granted children fourteen years of age and over who are still in school, and who desire to work before or after school hours or during vacation. Conditional permits are granted to boys and girls sixteen or seventeen years of age who have mental ability to complete the seventh grade, but who, through lack of educational opportunity, have failed to do so before they became sixteen years old. They are required to continue their education in evening school. Even with this law in force, the majority do not graduate. What becomes of these boys and girls who quit school between the ages of fourteen and eighteen years without graduation? What are their characteristics? How do they fit into our economic organization? What vocational advice are we justified in offering them?

The Cleveland school system through the Division of Research has recently published a notable study in which the employment of the pupils who withdrew from school under the provisions of the Bing Law was studied for a typical year.[1] This study includes a large enough population to guarantee the reliability of the findings, and at the same time it is broad

[1] Hickman, Mildred M. "Junior Wage Earners in Cleveland." Cleveland, Ohio: Board of Education. (Occupational Information Series, No. 5) A limited number of copies is available for general distribution at 75c per copy.

enough in scope to contribute much to our understanding of this important portion of our school population.

The 10,790 first permits issued from July 1, 1828 to July 1, 1929 are included in the study. The 3,085 renewals issued to the boys and girls for subsequent jobs within the same year were also included. Thus the entire population for what

TABLE I

PERCENTAGE OF BOYS AND GIRLS FOURTEEN TO EIGHTEEN YEARS OF AGE ENTERING EACH OF THE MAJOR OCCUPATIONAL GROUPS[a]

Occupational Group	Boys	Girls	Total
(1)	(2)	(3)	(4)
Electrical manufacturing	6.2	6.0	6.1
Electrical non-manufacturing	.6	1.9	1.2
Telegraph	10.1	.....	6.0
Metals	19.9	3.5	13.2
Department stores, etc.	9.0	19.1	13.1
Housework	.9	23.8	10.2
Clothing manufacturing	2.4	13.4	6.8
Retail food	6.2	4.6	5.5
Textiles, knit goods, rayon	3.4	5.4	4.2
Printing, publishing, etc.	4.6	1.5	3.3
Gas stations, auto sales, etc.	4.4	.1	2.7
Millinery, hats, and caps	.1	3.3	1.4
Paints, varnishes, oils, etc.	.9	1.2	1.1
Drugs	1.1	.5	.8
Restaurants	.3	.5	.4
Hospitals	.....	1.2	.5
Foundries, stove m'f'g, etc.	4.3	.6	2.8
Candy manufacturing	.1	.7	.4
Miscellaneous	25.5	12.7	20.3

[a] Hickman, *op. cit.*, p. 4 (Table 2).

was considered a normal year was used. The law provides for four different types of work permits, regular, retarded, part-time, and conditional. All the data collected are presented separately for each of these classifications. In order to be useful for the various Cleveland schools, the data for each school are also separately presented. The result is a staggering compilation—66 large tables, many of which are of interest only to particular school districts. In spite of this fact and the additional limitation due to the local character of the study, a wealth of data is presented which should be of interest to anyone who is concerned with vocational guidance.

Among other things, this research shows what occupational groups these boys and girls enter, the ratio of retarded permits to regular permits, the ages of boys and girls in the various occupational groups, length of service of boys and girls in each occupational group, the distribution of work permits granted to juniors according to sex, school attended, grade completed, age, nativity of child, and nativity of parents. One of the most helpful tables for the use of vocational counselors is that which shows the occupational groups which the junior workers are entering. A portion of this table is reproduced here in Table I for the benefit of those to whom this report may not be available. The percentages listed in Column 2 are computed for a total of 8,263 boys; those for Column 3 for 5,612 girls; and the figures in the last column are reckoned for the combined groups totaling 13,875.

It seems unfortunate that this report is not accompanied by a summary of those findings which apply to the state at large. This statement must be made even though the study as published, no doubt, meets the needs of the Cleveland system. The pithy statements which follow each table and which call attention to significant data in that table in part compensate for this omission. From these comments the reviewer has selected the following which seem to be of general interest.

Each time a boy or girl between the ages of fourteen to sixteen changes from one job to another a new work permit must be issued. This provision in the Bing Law makes it possible to determine the turnover of this group of workers. Permits issued during the school year included in this report average 1.3 per child. The rate was the same for boys and girls. It should be kept in mind that this rate is not the true rate since it simply represents a calendar year, so that some individuals had twelve months to change their job while others had only a month or less. It is unfortunate that the study does not provide a true picture of turnover.

Boys received three-fifths of the permits issued; girls received two-fifths. Nearly 80 per cent of the regular work permits issued were granted to sixteen-year-old boys and girls. Children whose parents come from Central Europe, Hungary, Poland, Czecho-Slovakia, Germany, Austria, and Jugo-Slavia, obtained almost half of all work permits issued. The ninth grade ranked first in number of permits granted with 24 per

cent; the eighth grade, second with 22 per cent; and the tenth grade, third with 16 per cent.

Only one in sixteen permits was issued to a retarded child, boys averaging a little higher than girls. Boys of German and Austrian parents averaged only half as many of this type of permits as the entire group of boys under consideration. Negro boys received 5.7 times the number of retarded permits for all groups, while the negro girls received 8.5 times the girls' average. Italians ranked next with 1.7 times the average for boys and 2.7 times the average for girls.

The largest number of boys who obtain permits to work are employed in metals factories whether it is their first, second, or sixth job. The second largest group work as telegraph messengers if it is their first job, but in department stores if it is their second or third job. The fourteen- or fifteen-year-old boys usually work for a telegraph company, a retail food concern, a metals factory, or a department store. The sixteen- or seventeen-year-old boys work in metals factories in larger proportions than the younger boys although they have usually completed only the eighth grade in school. The second largest group is employed by the department stores. The majority of this group are recruited from those who have completed the ninth grade. More than one-half of the boys who work for telegraph companies, retail food stores, and gas stations quit within one month. The department stores and electrical manufacturers retain their boys for six months or longer.

The girls show a greater concentration in a few occupational groups than do the boys. Girls who are fourteen or fifteen years of age work in the department-stores group in largest numbers. The second largest group do housework and the third largest group work in retail food establishments. Many of the girls employed by department stores quit in less than one month, although almost fifty per cent work more than three months. Almost three-fourths of all work permits issued to negro girls were for housework. In view of this fact it is unfortunate that so many of these girls elect commercial and industrial courses. Equally interesting is the fact that the percentage of white girls who do housework decreases with each grade of school completed, while the percentage of those who enter the employ of department stores increases with each grade of school completed.

EDITORIAL COMMENT

Talks

THE tabloid address to children by grown-up visitors holds a position of esteem far in excess of its worth. One will grant that upon occasion the mere presence of a well-known person is of some value to an audience of children, some intangible results may benefit the listeners, but the informational values which are supposed to spring from the usual talks by adults and can be measured objectively have definite limitations. Indeed, they are so limited that one may question the presence of unmeasurable intangibles. Evidence of the meager and distorted information learned by children from a talk can easily be determined by giving simple informational tests to children after the exercise is over.

One such test given to eighth-grade boys in the Thomas A. Edison School at Cleveland by H. K. Moore and based upon the content of the talk reveals a number of interesting facts. The facts were remembered by most of the boys in a fragmentary, incorrect, superficial, and sometimes distorted form. A few boys remembered nothing that was said. The stories in the address, which was a character talk, were better recalled than the applications. Assuming that the boys knew the right thing to do the speech failed to register in the children's minds the reason for doing the right thing.

To some graduate student searching for a Master's dissertation here is a beautiful project ready to hand. He will subject one hundred addresses to test procedures and see what he finds. Then he can formulate tentative procedures designed to produce effective talks, train the speakers, and test the results. When he has perfected these techniques any jury of school-teachers and principals will recommend him unanimously for a degree from any institution. Having completed his mission in the lower schools he may dedicate the remainder of his life to the service of adult audiences found in lecture halls, at banquet tables, and everywhere else that people gather to be edified.

W. W. C.

Announcing Four Assistantships

THE Bureau of Educational Research at the Ohio State University will, next April, employ four research assistants. This brief article is being written to call these positions to the attention of readers of the BULLETIN who may themselves be interested in applying, or who may know of other possible candidates. One assistant will be appointed to each of the following Divisions of the Bureau: Appointments, Curriculum, Personnel, and School Surveys.

Requirements for all four positions will include:

1. A Master's degree or its equivalent: that is to say, a Master's degree or a year of work toward the Doctor's degree acceptable to the College of Education of the Ohio State University.
2. Training in the area in which the appointment is made: that is to say, academic training definitely related to the area of appointment.
3. Experience in the field of appointment: this is a desirable rather than an essential requirement.
4. Printed publications, mimeographed material, dissertations or term papers in the field of the appointment should be submitted at the time of applying. The Bureau is interested in considering applicants who have already written upon the problems in the area of the appointment.
5. A willingness to continue in the position for two years if the first year is successful, the Bureau will not appoint anyone who cannot plan to stay on for two years if he succeeds the first year.
6. Interest in continuing in research permanently: the assistantships in the Bureau are not available to individuals who do not plan to continue research as a part of their permanent careers.
7. A willingness to meet some member of the staff at a convenient place if necessary even though some expense may be involved.

The compensation includes:

1. Twelve hundred dollars for twelve months' work
2. Half-time to be devoted to the Bureau and a schedule of work toward the doctorate in the College of Education, making it possible to do three quarters' work in four

3. A dissertation to be written in the field of the appointment
4. All fees to be waived except those for matriculation and graduation
5. Appointment from October first to October first

The appointee to the Appointments Division will assist in investigations of the supply and demand of teachers, of the selection and placement of teachers, and other problems of teacher personnel. He will not be expected to serve in the active administration of this placement organization, but rather will be trained in the research techniques of the field. The training offered in this position will prepare the individual appointed for teacher-placement positions in colleges and universities, and for carrying on research in the field of teacher personnel. The individual appointed will work under the direction of Dr. Earl W. Anderson.

The candidate chosen for the Curriculum Division will assist in curriculum construction and reconstruction projects on all educational levels. The training will prepare for specialization in curriculum work in universities or public schools. Dr. Edgar Dale will direct the work of the appointee.

The candidate chosen for the Personnel Division will assist in various investigations of student personnel being made in colleges and universities. He will be trained to continue research in this area. The appointee will work under the direction of Dr. W. H. Cowley.

The candidate appointed to the School Survey Division will help in financial and school-building surveys and other allied problems, such as research in class-size and teaching-load. A working knowledge of statistics is essential for this appointment. The individual appointed will work under the direction of Dr. T. C. Holy.

The appointments will be made on April 1, 1931. Anyone interested should write immediately to Dr. W. W. Charters, director of the Bureau, for further information.

* * *

An error appeared in Table II of Mr. Holy's article "Achievement in Grammar" on page 398 of the October 8 issue of the BULLETIN. The second line of the table should read "5.0-9.9 per cent" for the entry in Column 1, that in Column 2, "15," that in Column 3, "5."

READINGS

Books to Read

MELBY, ERNEST O. *A Critical Study of the Existing Organization and Administration of Supervision.* Bloomington, Illinois: Public School Publishing Company, 1929. xiii + 158 pp.

Questionnaires were used to discover the supervisory organizations and the activities and devices used by supervisors in 171 cities of the United States, ranging in size from eight to twenty thousand. Information was received from superintendents, principals, general and special supervisors, and teachers. Judgments concerning the value of the various forms of organization and the devices used were then made by a group of 56 specialists in administration and supervision.

Mr. Melby finds that a "typical city of this group employs an art supervisor, a music supervisor, and a physical-education supervisor. It employs a high-school supervisor and gives him no teaching duties. The city employs six elementary-school principals with varying proportions of time for teaching and supervision."

Supervision consists largely of classroom visitation despite the fact that teachers do not rate this activity so highly as do the supervisors. The teacher's participation in supervisory programs is rated highly, particularly by the specialists, but apparently is practiced little. Despite much discussion in professional groups concerning the value of democracy in supervision, current practice seems to be dominated by autocratic methods. A sad commentary upon the present situation is that supervisory staffs spend much more time in finding facts than in promoting the growth of pupils and teachers.

As a handbook of current practice, this study is invaluable, providing, of course, that those who use it are conscious of the limitations of the procedure. Little attempt is made at evaluation, except in a general way, and certainly there is no attempt to develop a consistent point of view regarding supervision.

H. B. ALBERTY

RUBADO, CLARENCE A. *Problems of the City School Superintendent in the Field of Arithmetic.* New York: Teachers College, Columbia University, 1930. 107 pp. (Teachers College, Columbia University, Contributions to Education, No. 406)

There are signs that the educational world is awakening to the fact that a number of important problems relating to the administration of the curriculum still must be solved. A good beginning has been made in this new field by Mr. Rubado in the study which is the subject of this review. After establishing the principle that the superintendent of schools is responsible for the administration of the curriculum, the author proceeded with his investigation by ascertaining what knowledge of arithmetic a superintendent needs in his work. Two criteria were used as guides in the selection of the material in question. It was assumed that all material worth listing has either merited publication in a journal, book, or proceedings of an educational society, or would be mentioned by superintendents themselves in answer to a questionnaire.

The first criterion yielded 106 problems or topics which could be classified under eight heads; the second produced ninety-six topics, all of which could be identified with similar ones which were obtained by using the first criterion. The 106 items were then given to a jury of fifty-four superintendents for judgment as to relative importance. Forty-two of these superintendents lived in New York, New Jersey, Massachusetts, and Connecticut. The remaining twelve were scattered through eleven other states. By their votes, these superintendents characterized each of the problems as "essential," "useful," or "of no value." In this way the 106 topics were ranked according to importance. Finally, an extensive bibliography was provided containing material relating to each of the 106 topics as finally ranked in order of importance.

It is possible to question the complete validity of the two criteria. One can point also to omissions in the bibliography—the works of Winch in England should by all means have been included. But all of these shortcomings are minor in comparison with the practical values which the study contains. The classified bibliography undoubtedly includes nearly all of the best references to each of the 106 most important problems which superintendents must meet in the administration of the course of study in arithmetic. Every superintendent who wishes to give serious attention to the administration of the arithmetic curriculum will find this study most helpful. It is to be hoped that similar facilities will soon be available for all school subjects.

W. J. OSBURN

WATSON, GOODWIN, AND SPENCE, RALPH B. *Educational Problems for Psychological Study*. New York: Macmillan Company, 1930. xii + 352 pp.

Sketches in and out of School, published by the same authors in 1927, has been revised here. The authors have gathered together 167 problem cases from the graduate students at Teachers College, Columbia University. These cases are descriptions of problems of children and adults, which can be partially solved by the use of educational psychology. Each case is followed by a short list of questions to guide discussion and study. The book may be used in a course on educational psychology, and suggestions for student preparation are made. With college undergraduates the book has questionable value. A satisfactory solution of the cases demands experience and considerable knowledge of psychological and educational subject-matter, if it is not to develop into a subjective expression of opinion.

C. H. SMELTZER

FARLEY, BELMONT MERCER. *What to Tell the People about the Public Schools*. New York: Teachers College, Columbia University, 1929. viii + 136 pp. (Teachers College, Columbia University, Contributions to Education, No. 355)

The aims of this study were to find what school news is most interesting and most often presented to the readers of newspapers, and to present a list of educational topics for the guidance of the newspaper publishers. Five thousand parents of children enrolled in school, assumed to be those most vitally interested in education, were asked to rank the thirteen types of school news according to their interest in them. When the news presented to the readers was classified and ranked according to amount under the same headings

it was found that there was almost complete reversal of rank order. Of all school news published, 47.1 per cent is on the subject of extra-curricular activities, ranking last in the matter of interest, while only 5.6 per cent of the news involved pupils' progress and achievement, ranking first in interest.

Two reasons are obvious for this disagreement. The one is the fact that only parents were questioned on the matter of interest, thereby eliminating a large number of readers among non-parents, non-school patrons, and school children themselves; and the second is the fact that persons are not inclined to be exactly honest when queried on the matter of theory versus practice. Many parents would say their chief interest is in the academic progress of their children and then turn first to the sport page to get the details of the local high-school basket-ball game.

The third part of this study carries 13 general topics of school news subdivided into 337 topics illustrated with stories, leads, and heads which should be of real value to the publisher of school news.

W. K. WILSON

WYNNE, J. P. *General Method: Foundation and Application.* New York: Century Company, 1929. xviii + 517 pp.

In a book that is overlong and not too easily read, the author has evolved a philosophy of education which takes its lead from the latest developments in biology and psychology and treats of education as a unified and integrated process. Existing methods are critically examined, and concurrently the author emerges with a dynamic view of the educative process and a "theory of progressive adjustment" which "includes the whole of experience and is conceived as embodying a principle of method which is of general application in all fields of education." This is not an easy task, but would have been simplified had the attack been less circuitous.

Professor Wynne turns to the actual teaching-learning situation to locate the "practical conceptions" which his theory of method should illuminate. These he lists and discusses as follows: selection of undertakings, independent work, class meetings, provision and selection of material, and estimation of progress, methods, and conditions. He indicates that this approach is preferable to the "logical analysis" procedure that Herbart, Dewey, Kilpatrick, and others have followed.

Each chapter is introduced by a series of questions fashioned to guide the reader; each chapter closes with a summary, often too long; and each chapter is accompanied by an excellent list of annotated and pertinent references. In conclusion the general treatment is given specific application to a teaching situation in which the author has practiced the doctrine he now preaches.

H. GORDON HULLFISH

WILLIAMS, FRANKWOOD E. *Adolescence; Studies in Mental Hygiene.* New York: Farrar and Rinehart, 1930. xi + 279 pp.

This book is more like an anthology than a systematic presentation of the facts about either adolescence or mental hygiene, but the reader will find its essential unity in a plea for "reorientation of thought itself in approaching the problem." The author feels that in much of our thought about mental hygiene we have been concerned with symptoms, which have in some

instances become "vested rights" with both the adolescent and the adult who has charge of him, and which rights neither side really wants to give up. The presentation is divided into three sections, "Putting Away Childish Things," "Educating More than the Intellect," and "What Can Be Done." The first discusses parents; the second the college student; the third is largely concerned with the prevention of delinquency. Perhaps no worker in the field of mental hygiene has a clearer vision and one resulting less from personal bias than has the author of this book. His literary style is attractive, and the reader will find in this volume a stimulus to clearer thinking.

EMILY L. STOGDILL

BROADY, KNUTE O. *School Provision for Individual Differences.* New York: Teachers College, Columbia University, 1930. 101 pp. (Teachers College, Columbia University, Contributions to Education, No. 395)

Mr. Broady has made a practical and much needed contribution in this outline and guide for teachers and educators who must make provision for various types of children. The work is based upon an exhaustive analysis of policies suggested in educational literature, and also upon the practices found in eighteen cities in which by conference and observation he received first-hand information. The suggestions offered in this work relate to the different types of children found in the average school system, such as mentally subnormal and exceptional children, physical defectives, and delinquents. Rather specific directions are given in regard to maximal and minimal limits of intelligence for various groups and grades.

The addition of an index, or a more comprehensive table of contents, would add materially to the practical value of the book in the hands of the busy administrator. However, the conciseness of the treatment partially overcomes this deficiency. On the whole, the book will be of value to school administrators and to those who have to deal with problem children, or who make provision for the various types of children in a school system.

STELLA M. BOWERS

OSBURN, W. J. *Corrective Arithmetic.* Boston: Houghton Mifflin Company, 1929. iv + 279 pp.

This volume will be more valuable to the textbook writer than to the teacher. It is to be hoped that someone will present a corresponding book on mathematics in the secondary schools and also in colleges and universities. The function of corrective arithmetic is to provide a method of pupil diagnosis and to furnish suitable experiences in practice material to meet these needs. The entire book presents a positive program for teaching arithmetic, remedial treatment for the pupils who are slow, and an enriched curriculum for those who are bright. The difficulties in learning to compute properly with both common fractions and decimal fractions is discussed. Each child is expected to learn a larger number of denominate values. Ratio and proportion should, because of their importance in everyday life, be regarded as of importance almost equal to the four fundamental operations. The chapter "What to Teach in Each Grade" is in reality a summary, putting the suggestions of the book into a usable form.

HAROLD A. EDGERTON

DEBUSK, BURCHARD WOODSON. *The Persistence of Language Errors among School Children.* Eugene, Oregon: University of Oregon, 1930. 21 pp. (University of Oregon Publications, II, No. 4)

By means of tests, Mr. DeBusk has investigated the frequency, types, and continuity of grammatical errors in the English usage of some twenty thousand public-school pupils. The range of pupils to whom the test was first given was from Grade III through Grade X. The test was given first in November, 1927, and repeated in November, 1929, with virtually the same pupils as subjects, all of them thus being two years older and supposedly two grades further advanced in school. The tests employed in the investigation and the findings are given in full in the book.

Among the most important general conclusions suggested by the investigator are the following: that language habits are much more powerful in determining usage than are grammatical rules; that schools must foster in pupils the desire to use language correctly; that all grammatical instruction must be functional and relate specifically to individual needs; that emphasis upon correct language usage must be general throughout the school, rather than being largely restricted to English classes.

HOWARD FRANCIS SEELY

BEECHEL, EDITH E. *A Citizenship Program for Elementary Schools.* New York: Teachers College, Columbia University, 1929. xii + 170 pp. (Teachers College, Columbia University, Contributions to Education, No. 335)

Here is a book both promising and disappointing. One is impressed by the comprehensive view of training in citizenship which recognizes that that quality will be maximally fostered only to the degree of the entire school program. After this high beginning, the author sets out to furnish a theoretical basis for her program. This presentation is not convincing. Conflicting views are snuggled together in positions where they cannot rest comfortably. For instance, the "real citizenship program" is a reflection of Dewey's democratic ideal. Again, the psychology, which is basic to the program, turns so sharply in the direction of specific habit formation that one wonders what has happened to the controlling ideal.

This wonder is quickly dissipated when the author turns to the activity of a particular classroom. The set-up here is colored quite highly by the social view; the learning in which the teacher is interested is read off in terms of specific citizenship habits.

In any event, the author has undertaken to present a program. This she clearly accomplishes. Others, naturally, are not obligated to approve it, and some may rise to it with greater enthusiasm than did this reader.

H. GORDON HULLFISH

NELSON, LOUISE A. *Variations in Development and Motor Control in Goiterous and Non-Goiterous Adolescent Girls.* Baltimore: Warwick and York, 1929. xii + 193 pp. (University Research Monographs, No. 5, Playground Athletic League, Study No. 2)

The author describes the method and the procedure used in measuring the development and testing the motor control of 149 goiterous and 51

non-goiterous adolescent girls ranging in age from twelve to twenty-one years. Records of the examinations and results of the experiments conducted are given in a readily comprehensible form. Tables, charts, and graphs show various aspects of the problems considered. The subjects who lived in Baltimore County and Allegany County, Maryland, represented extractions from eight different nationalities.

The book is especially valuable because it deals with experiments proving certain facts about which there have been many assumptions but very little research. The significance of the whole experiment is sufficiently great to warrant its further investigation by someone interested in the problem. Thyrotoxicosis is a psychological as well as medical problem. Subjects may learn that many of their symptoms and reactions, such as restlessness, unsteadiness, suspicion, and irritability, have an organic basis, and they may learn how to cope with their symptoms. The author gives pertinent suggestions to subjects who want to know the type of nervous mechanism that they possess.

NORMA SELBERT

BELLINGRATH, GEORGE C. *Qualities Associated with Leadership in the Extra-Curricular Activities of the High School.* New York: Teachers College, Columbia University, 1930. 57 pp. (Teachers College, Columbia University, Contributions to Education, No. 399)

This study was limited to 240 Seniors in five high schools in and about New York City. Half of these pupils were student-elected leaders and half were not. The two groups were compared as to the possession of certain qualities. The practical value of the study may be inferred from the following conclusions drawn by the author: leaders among the boys are older than non-leaders; leaders among the girls are heavier and taller than non-leaders; leaders receive better marks and higher ratings in attitude toward school than non-leaders; and leaders have a higher socio-economic status than non-leaders. Studies of this kind may have value as a means for displaying skill in the statistical treatment of data in the field of education.

FRANK P. WHITNEY

STURTEVANT, S. M., AND STRANG, R. M. *A Personnel Study of Deans of Girls in High Schools.* New York: Teachers College, Columbia University, 1929. vii + 150 pp. (Teachers College, Columbia University, Contributions to Education, No. 393)

The purpose of this study, its authors say, is to give a more comprehensive view of the status and function of deans in secondary schools than has been made before. They have succeeded to an unusual degree. The genuine interest and co-operation which they feel they have received from the one hundred deans selected to assist in the study carry over to the reader. The report is full of valuable information, arranged in a manner that, unusual in such a report, makes really interesting reading.

Training, salaries, duties, divisions and details of work, and relationship to other people are topics that are vividly set forth and carefully analyzed. Since the deanship is still in the pioneer stage, this symposium of facts is timely. Officials in schools, where there is no definite office of dean, will find here proof of the value of the position and satisfactory data as to the

nature of the work. Deans themselves, whether experienced or new, will find consolation, instruction, and food for thought. Every dean will do well to include this book in her library.

ELSIE C. DAVIES

REALS, WILLIS HOWARD. *A Study of the Summer High School.* New York: Teachers College, Columbia University, 1928. vi + 88 pp. (Teachers College, Columbia University, Contributions to Education, No. 337)

The value of the summer high-school session, as determined by the grade of academic work done and the degree of pupil success in advanced work, is a problem of this author, who deals in comparisons between regular academic sessions and summer sessions. Two schools, the Oswego (New York) High School and the Washington Irving High School, New York City, which were in session during the summer of 1927, were chosen for study.

Five achievement tests were given to compare the quality of work done in summer school with that of the regular academic year, and the two divisions were equated on the basis of the scores on the Terman group test. It was concluded that the work of the summer high-school group was superior to that of the group during the regular academic year. Summer high-school pupils were then followed into the succeeding term's work in the regular academic year, in order to discover how they compared in sustaining ability with non-summer-school pupils. It was found that although the summer-school pupils excelled in achievement while in summer school, they were below the non-summer group in sustaining ability during the regular academic year.

In a study of the personnel of the summer high school, it was found that the largest proportion was enrolled in the senior year and that pupils seemed to take an increasing advantage of summer school as they advanced in high school. Of the pupils in New York City in 1926-27, 17.3 per cent attended summer high school. Nearly 70 per cent of the pupils were registered in subjects in which they had previously failed.

W. MORRIS KOHR

WOODRING, MAXIE N., AND HAROLD, GILBERT. *Enriched Teaching of Commercial Subjects in the High School.* New York: Teachers College, Columbia University, 1930. viii + 339 pp. (Enriched Teaching Series, No. 4)

This book is the fourth of a series of source books prepared by the authors for high-school teachers, and it is devoted to the special field of commercial subjects. It is a compilation of sources of teaching materials to amplify and enrich the subject-matter of textbooks as well as to vitalize and make practical classroom activities. The listing includes textbooks, bulletins, pamphlets, and illustrative and supplementary materials which will serve in teaching bookkeeping, shorthand, typewriting, and other commercial subjects.

Progressive teachers of commercial subjects should welcome this book. Fortunately, this group of subjects is rich in number and variety of aids available, and this volume should lead the teacher to the vast stores of such materials. Full instructions are given for ordering all materials, especially those labeled "free," such as motion pictures, lantern slides, and films. The authors do not claim the listing to be complete, but it is extensive enough to serve adequately.

C. M. YODER

Notes

THE Eleventh Annual Conference of the Progressive Education Association will be held February 26-28, 1931, at Detroit, with headquarters at the Book-Cadillac Hotel. Among the speakers will be John Erskine, William Boyd, Glasgow, Scotland; Harold Rugg, Teachers College, New York; W. Carson Ryan, Jr., director of Indian Education of the United States Department of the Interior; Wilford Aikin, the John Burroughs School, St. Louis; Katharine Taylor, the Shady Hill School, Cambridge; Dr. Goodwin Watson, Teachers College, New York; Eugenia Eckford, the Tower Hill School, Wilmington; Elsie Wygant, the Francis W. Parker School, Chicago; Morton Snyder, the Rye Country Day School, Rye; and others. Among the topics to be discussed will be "The Education of the Progressive Teacher," "College Entrance and the Secondary School," "Children's Interests versus the Teachers' Judgment," "The Next Step in International Co-operation," "Music in the Schools for a New Day." In addition there will be a symposium on the teaching of special subjects, such as art, music, science, the languages, and others, with exhibits of school material to be used. The Conference will feature its annual banquet, various luncheons, school-visiting, sight-seeing, and receptions. Advance reservations and applications for membership should be made to the Progressive Education Association, 10 Jackson Place, Washington, D. C., and hotel reservations direct to the Book-Cadillac Hotel. Certificates for reduced railroad rates will be issued to members only.

* * *

ON ACCOUNT of the interest which has been expressed in the visit of Henry R. Seager, professor of Columbia University, and his party to Russia last summer, plans are being made to organize a similar group to go to Russia during the summer of 1931. This party will meet in Berlin on July 6, 1931, and spend five weeks in Russia, visiting the industrial centers, financial institutions, schools, courts, workers' clubs, co-operative farms, museums, and places of historical interest. Anyone who is interested in joining this party should communicate with Roy H. Mackay, Columbia University, New York City.

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